

ORAL ARGUMENT NOT YET SCHEDULED

DOCKET No. 13-1259

**UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

SHIELDALLOY METALLURGICAL CORPORATION

Petitioner,

v.

**UNITED STATES NUCLEAR REGULATORY COMMISSION AND
THE UNITED STATES OF AMERICA,**

Respondents.

**ON PETITION FOR REVIEW OF A FINAL ORDER BY
THE UNITED STATES NUCLEAR REGULATORY COMMISSION**

BRIEF OF PETITIONER

SHIELDALLOY METALLURGICAL CORPORATION

Jay E. Silberg
Matias F. Travieso-Diaz
Stephen L. Markus
Alison M. Crane

PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N Street, NW
Washington, DC 20037
(202) 663-8000
COUNSEL FOR SHIELDALLOY
METALLURGICAL CORPORATION

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

In accordance with Circuit Rule 28(a)(1), Petitioner Shieldalloy Metallurgical Corporation (“Shieldalloy”) certifies as follows:

A. Parties: In addition to Petitioner, parties to this action are Respondents U.S. Nuclear Regulatory Commission (“NRC” or “Commission”) and the United States of America and Intervenor State of New Jersey (“New Jersey”).

B. Rulings Under Review: The agency action under review is the NRC’s decision reinstating the transfer of its authority over Shieldalloy’s facility in Newfield, New Jersey (“the Facility”) to New Jersey, as set forth in its Memorandum and Order, R10 (*Shieldalloy Metallurgical Corp.* (Decommissioning of Newfield, New Jersey Site), CLI-13-06, 78 NRC ___) (Aug. 5, 2013)) (“Memorandum and Order” or “CLI-13-06”), JAx¹. The NRC had previously transferred jurisdiction over the Facility to New Jersey under an agreement between the NRC and New Jersey pursuant to Section 274 of the Atomic Energy Act of 1954, 42 U.S.C. § 2021. This

¹

In this Brief, the notation “JAx¹” refers to the applicable pages in the Joint Appendix, to be provided after briefing is completed. “RXX” denotes the number of the document identified as number XX in the Certified Index of the Record.

Court, in *Shieldalloy Metallurgical Corp. v. NRC*, 624 F.3d 489 (D.C. Cir. 2010) (“*Shieldalloy I*”) vacated the transfer and remanded the matter to the NRC for further proceedings.

On remand, the NRC reinstated the transfer of its regulatory authority over the Facility to New Jersey. *Shieldalloy Metallurgical Corp.* (License Amendment for Decommissioning of the Newfield, New Jersey Site), CLI-11-12, 74 NRC 460 (2011). Shieldalloy filed a petition for review with this Court challenging the NRC’s reinstatement of its transfer of regulatory authority and, on February 19, 2013, the Court again vacated the transfer and remanded the case to the NRC for further proceedings consistent with the Court’s opinion. *Shieldalloy Metallurgical Corp. v. NRC*, 707 F.3d 371 (D.C. Cir. 2013) (“*Shieldalloy II*”).

Following the Court’s second remand, the NRC issued its Memorandum and Order on August 5, 2013.

C. Related Cases: Previous proceedings in this matter are discussed in *Shieldalloy I* and *Shieldalloy II*. Counsel is not aware of any cases in this Court or any other court involving the validity of the transfer of regulatory authority over the Facility from the NRC to New Jersey. Several actions are pending relating to New Jersey's exercise of authority

over the Facility after the Agreement went into effect. *Shieldalloy Metallurgical Corp. v. State of New Jersey Dep't of Env'tl. Prot. and Mark N. Mauriello in his Capacity as Acting Comm'r of the Dep't of Env'tl. Prot. of the State of New Jersey*, No. 10-4319 (3d Cir., filed Nov. 10, 2010); *In re N.J.A.C. 7:28*, No. A-278-09 (N.J. Super. Ct. App. Div., filed Sept. 14, 2009), consolidated with *Shieldalloy Metallurgical Corp. v. New Jersey Dep't of Env'tl. Prot.*, No. A-1481-09 (N.J. Super. Ct. App. Div., filed Nov. 25, 2009); *Shieldalloy Metallurgical Corp. v. New Jersey Dep't of Env'tl. Prot.*, No. EER-12529-2010-S (N.J. Office of Admin. Law, filed Nov. 10, 2010); *Shieldalloy Metallurgical Corp. v. New Jersey Dep't of Env'tl. Prot.*, No. EER-12532-2010-S (N.J. Office of Admin. Law, filed Nov. 10, 2010); *Shieldalloy Metallurgical Corp. v. New Jersey Dep't of Env'tl. Prot.*, No. _____ (N.J. Office of Admin. Law, filing date pending).

Respectfully submitted,

/s/ Matias F. Travieso-Diaz

Jay E. Silberg
Matias F. Travieso-Diaz
Stephen L. Markus
Alison M. Crane

PILLSBURY WINTHROP
SHAW PITTMAN LLP
2300 N Street, NW
Washington, DC 20037
(202) 663-8000
Counsel for Shieldalloy Metallurgical
Corporation
E-mail: matias.travieso-diaz@pillsburylaw.com

Dated: February 4, 2014

**SHIELDALLOY METALLURGICAL CORPORATION'S CORPORATE
DISCLOSURE STATEMENT**

Pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure and Circuit Rule 26.1, Shieldalloy Metallurgical Corporation (“Shieldalloy”), by and through its undersigned counsel, hereby certifies that:

Shieldalloy is a Delaware corporation and is a direct, wholly-owned subsidiary of Metallurg, Inc., a Delaware corporation, and an indirect subsidiary of Metallurg Holdings, Inc., a Delaware corporation. It is also an indirect subsidiary of Metallurg Delaware Holdings Corporation, a privately-owned holding company, and of AMG Advanced Metallurgical Group N.V., a publicly-owned company.

Shieldalloy is an industrial company that, at its facility in Newfield, New Jersey, for a number of years manufactured metal alloys from ores containing small amounts of uranium and thorium. Shieldalloy has held for many years materials license No. SMB-743 issued by the NRC authorizing it to possess the uranium and thorium at the facility. Such license has been transferred to New Jersey by order of the NRC.

Respectfully submitted,

/s/ Matias F. Travieso-Diaz

Jay E. Silberg
Matias F. Travieso-Diaz
Stephen L. Markus
Alison M. Crane

PILLSBURY WINTHROP
SHAW PITTMAN LLP
2300 N Street, NW
Washington, DC 20037
(202) 663-8000

Counsel for Shieldalloy Metallurgical
Corporation
E-mail: matias.travieso-diaz@pillsburylaw.com

Dated: February 4, 2014

TABLE OF CONTENTS

| | <u>Page</u> |
|---|--------------------|
| CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES | 1 |
| SHIELDALLOY METALLURGICAL CORPORATION’S CORPORATE DISCLOSURE STATEMENT | 1 |
| TABLE OF AUTHORITIES | iii |
| GLOSSARY OF TERMS AND ABBREVIATIONS | 1 |
| STATEMENT REGARDING JOINT APPENDIX | 3 |
| JURISDICTIONAL STATEMENT | 4 |
| STATEMENT OF THE ISSUES PRESENTED FOR REVIEW | 8 |
| STATEMENT OF THE CASE | 10 |
| STATEMENT OF FACTS | 13 |
| A. FACTS LEADING TO SHIELDALLOY II DECISION | 13 |
| B. POST-REMAND PROCEEDINGS | 20 |
| SUMMARY OF THE ARGUMENT | 21 |
| STANDING | 26 |
| ARGUMENT | 28 |
| I. STANDARD OF REVIEW | 28 |
| II. THE ALARA PRINCIPLE IS INTENDED TO REDUCE RADIOLOGICAL EXPOSURES TO THE PUBLIC AS FAR BELOW REQUIRED DOSE LEVELS AS IS PRACTICAL, BASED UPON A COMPARATIVE ANALYSIS AMONG POTENTIAL ALTERNATIVES | 31 |
| A. Application of the ALARA principle is established by law and mandated by Commission regulations..... | 31 |

| | | |
|------|--|----|
| B. | The NRC has explicitly mandated the implementation of the ALARA principle in the area of facility decommissioning..... | 35 |
| C. | Implementation of the ALARA principle for facility decommissioning requires analysis of the doses from alternative decommissioning methods..... | 36 |
| III. | THE NRC’S POST HOC INTERPRETATION OF THE ALARA PRINCIPLE AS APPLIED TO ITS LICENSE TERMINATION RULE IS CONFUSING, INTERNALLY CONTRADICTORY, AND INCONSISTENT WITH THE AGENCY’S PRIOR GUIDANCE AND PRACTICE | 41 |
| A. | Section 20.1403(a) is intended to implement the policy goals of ALARA .. | 41 |
| B. | A reading of Section 20.1403(a) that requires comparison of the dose reduction benefits of restricted and unrestricted use decommissioning alternatives is consistent with the Court’s interpretation in <i>Shieldalloy II</i> | 42 |
| C. | The NRC’s attempt to explain Section 20.1403(a) obfuscates rather than clarifies its meaning | 45 |
| D. | The NRC’s “textual analysis” of Section 20.1403(a) contradicts prior NRC interpretations and applications of this provision..... | 53 |
| E. | The NRC employs similar comparisons of dose scenarios in other contexts calling for ALARA analyses..... | 62 |
| IV. | THE NEW JERSEY PROGRAM IS INCOMPATIBLE WITH THE NRC’S DUE TO ITS FAILURE TO IMPLEMENT NRC’S ALARA PROVISIONS | 63 |
| V. | THE NRC’S REPEATED FAILURE TO REQUIRE THAT THE NEW JERSEY PROGRAM MEET NRC LICENSE TERMINATION STANDARDS RENDERS THE REINSTATEMENT OF THE TRANSFER OF AUTHORITY ARBITRARY AND CAPRICIOUS | 66 |
| | CONCLUSION | 67 |
| | CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION | 69 |

TABLE OF AUTHORITIES

| <u>Cases</u> | <u>Page</u> |
|---|-------------|
| <i>Am. Wildlands v. Kempthorne</i> , 530 F.3d 991 (D.C. Cir. 2008)..... | 66 |
| <i>Akzo Nobel Salt, Inc. v. Fed. Mine Safety & Health Review Comm’n</i> , 212 F.3d 1301 (D.C. Cir. 2000) | 30 |
| <i>Burlington Truck Lines, Inc. v. U.S.</i> , 371 U.S. 156 (1962) | 28 |
| <i>Carpenters & Millwrights Local Union 2471 v. NLRB</i> , 481 F.3d 804 (D.C. Cir. 2007) | 66 |
| * <i>Christopher v. SmithKline Beecham Corp.</i> , 132 S. Ct. 2156 (2012)..... | 30 |
| <i>Citizens to Preserve Overton Park, Inc. v. Volpe</i> , 401 U.S. 402 (1971) | 66 |
| * <i>Comcast Cable Commc’ns, LLC v. FCC</i> , 717 F.3d 982 (D.C. Cir. 2013) | 30 |
| * <i>Decker v. Nw. Env’tl. Def. Ctr.</i> , 133 S. Ct. 1326 (2013) | 29 |
| * <i>Dillmon v. NTSB</i> , 588 F.3d 1085 (D.C. Cir. 2009)..... | 30 |
| * <i>Farmers Union Cent. Exch., Inc. v. FERC</i> , 734 F.2d 1486 (D.C. Cir. 1984) | 28 |
| * <i>Int’l Longshoremen’s Ass’n v. Nat’l Mediation Bd.</i> , 870 F.2d 733 (D.C. Cir. 1989) | 29 |
| <i>Lujan v. Defenders of Wildlife</i> , 504 U.S. 555 (1992) | 27 |
| <i>Macias v. Kerr-McGee Corp.</i> , No. 92-3389C, 1993 WL 408357 (N.D. Ill. Oct. 12, 1993) | 6 |
| <i>Mistick PBT v. Chao</i> , 440 F.3d 503 (D.C. Cir. 2006) | 30 |
| * <i>Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.</i> , 463 U.S. 29 (1983) | 28 |
| <i>N.J. v. NRC</i> , 526 F.3d 98 (3d Cir. 2008) | 5 |

Authorities upon which Petitioner chiefly relies are marked with asterisks.

| | |
|---|--|
| <i>Northern States Power Co.</i> (Prairie Island Nuclear Generating Plant, Units 1 and 2), LBP-77-51, 5 NRC 265 (1977)..... | 63 |
| * <i>PPL Wallingford Energy LLC v. FERC</i> , 419 F.3d 1194 (D.C. Cir. 2005) | 31 |
| * <i>Ramaprakash v. FAA</i> , 346 F.3d 1121 (D.C. Cir. 2003) | 28,30 |
| * <i>Rapoport v. SEC</i> , 682 F.3d 98 (D.C. Cir. 2012)..... | 29 |
| <i>Shieldalloy Metallurgical Corp.</i> (License Amendment for Decommissioning of Newfield, New Jersey Site), LBP-07-5, 65 NRC 341 (2007)..... | 15-16 |
| <i>Shieldalloy Metallurgical Corp.</i> (License Amendment Request for Decommissioning of the Newfield, New Jersey Facility), CLI-10-8, 71 NRC 142 (2010)..... | 37 |
| * <i>Shieldalloy Metallurgical Corp. v. NRC</i> , 624 F.3d 489 (D.C. Cir. 2010) (“ <i>Shieldalloy I</i> ”)..... | 4,8,13,16,17,18,19,26,28,29,65,66,67 |
| <i>Shieldalloy Metallurgical Corp.</i> (License Amendment for Decommissioning of Newfield, New Jersey Site), CLI-11-12, 74 NRC 460 (2011)..... | 19,35 |
| <i>Shieldalloy Metallurgical Corp.</i> (Decommissioning of Newfield, New Jersey Site), CLI-13-06, 78 NRC ____ (Aug. 5, 2013) | 6,7,20,26,37,45,46,47,48,50,51,52,53,54,64 |
| * <i>Shieldalloy Metallurgical Corp. v. NRC</i> , 707 F.3d 371 (D.C. Cir. 2013) (“ <i>Shieldalloy II</i> ”)..... | 4,5,8,13,19,26,29,40,42-45,54,55,59,65,66 |
| <i>Sierra Club v. EPA</i> , 292 F.3d 895 (D.C. Cir. 2002)..... | 27 |
| <i>Silkwood v. Kerr-McGee Corp.</i> , 464 U.S. 238 (1984) | 33 |
| <i>Sunflower Coal. v. NRC</i> , 534 F. Supp. 446 (D. Colo. 1982)..... | 6 |
| * <i>Thomas Jefferson Univ. v. Shalala</i> , 512 U.S. 504 (1994) | 30 |

| | |
|---|----|
| <i>Transmission Agency of N. Cal. v. FERC</i> , 495 F.3d 663 (D.C. Cir. 2007) | 30 |
| <i>Walter O. Boswell Mem'l Hosp. v. Heckler</i> , 749 F.2d 788 (D.C. Cir. 1984) | 66 |
| <i>Yankee Atomic Energy Co. (Yankee Atomic Power Station),</i> CLI-96-1, 43 NRC 1 (1996) | 63 |
| <i>York Comm. for a Safe Env't v. NRC</i> , 527 F.2d 812 (D.C. Cir. 1975) | 33 |

Statutes, Regulations & Other Documents

| | |
|--|-------|
| 5 U.S.C. § 551 <i>et seq.</i> (2006) | 28 |
| 5 U.S.C. § 706(2)(A) (2006) | 28 |
| 28 U.S.C. § 2341 (2006) | 5 |
| 28 U.S.C. § 2342 (2006) | 5 |
| 28 U.S.C. § 2342(4) (2006) | 5 |
| 28 U.S.C. § 2343 (2006) | 5,6 |
| 28 U.S.C. § 2344 (2006) | 5,6,7 |
| 28 U.S.C. § 2345 (2006) | 5 |
| 28 U.S.C. § 2346 (2006) | 5 |
| 28 U.S.C. § 2347 (2006) | 5 |
| 28 U.S.C. § 2348 (2006) | 5 |
| 28 U.S.C. § 2349 (2006) | 5 |
| 28 U.S.C. § 2350 (2006) | 5 |
| 28 U.S.C. § 2351 (2006) | 5 |
| Atomic Energy Act of 1954, as amended, § 2d | 31 |
| Atomic Energy Act of 1954, as amended, § 3d | 31 |
| Atomic Energy Act of 1954, as amended, § 63b | 31 |

| | |
|---|-------------------------|
| Atomic Energy Act of 1954, as amended, § 69 | 31 |
| Atomic Energy Act of 1954, as amended, § 161b | 31 |
| Atomic Energy Act of 1954, as amended, § 274 | 20 |
| Atomic Energy Act of 1954, as amended, § 274b | 4,15,10 |
| 42 U.S.C. § 2012(d) (2006) | 31 |
| 42 U.S.C. § 2013(d) (2006) | 31 |
| 42 U.S.C. § 2021(b) (2006) | 4,16 |
| 42 U.S.C. § 2021(d)(2) (2006)..... | 4,8,10,16 |
| 42 U.S.C. § 2093(b) (2006) | 31 |
| 42 U.S.C. § 2099 (2006) | 31 |
| 42 U.S.C. § 2201(b) (2006) | 8,31 |
| 42 U.S.C. § 2239 (2006) | 5 |
| 42 U.S.C. § 2239(a) (2006)..... | 5 |
| 42 U.S.C. § 2239(a)(1)(A) (2006) | 5 |
| 10 C.F.R. Part 20 (2009)..... | 17 |
| 10 C.F.R. § 20.1(c) (1975)..... | 32 |
| 10 C.F.R. § 20.1003 (2009) | 34,35,37,38,41,44,49,51 |
| 10 C.F.R. § 20.1101 (2009) | 34 |
| 10 C.F.R. § 20.1101(b) (2009)..... | 33,45,51 |
| 10 C.F.R. § 20.1206 (2009) | 34 |
| 10 C.F.R. § 20.1301 (2009) | 34 |
| 10 C.F.R. § 20.1401 (2009) | 22 |
| 10 C.F.R. § 20.1401(c) (2009)..... | 49 |

| | |
|---|--|
| 10 C.F.R. § 20.1402 (2009) | 9,47,49,50,53 |
| * 10 C.F.R. § 20.1403 (2009) | 9,11,15,23,45,50,54 |
| * 10 C.F.R. § 20.1403(a) (2009) | 19,20,39,40,41,42,43,44,45,47,48,50,51,53,55,56,57,58,59,62,63 |
| 10 C.F.R. § 20.1406(c) (2013) | 49 |
| 10 C.F.R. § 20.1601 (2009) | 34 |
| 10 C.F.R. § 20.1702 (2009) | 34 |
| 10 C.F.R. § 20.1704 (2009) | 34 |
| 10 C.F.R. § 20.2105 (2009) | 34 |
| 10 C.F.R. § 20.2203 (2009) | 34 |
| 10 C.F.R. § 34.3 (2009) | 34 |
| 10 C.F.R. § 34.42 (2009) | 34 |
| 10 C.F.R. Part 40, App. A (2009) | 34 |
| 10 C.F.R. § 50.34 (2009) | 34 |
| 10 C.F.R. § 50.66 (2009) | 34 |
| 10 C.F.R. § 50.82 (2009) | 63 |
| 10 C.F.R. § 72.3 (2009) | 34 |
| 10 C.F.R. § 72.126 (2009) | 32 |
| 35 Fed. Reg. 18,385 (Dec. 3, 1970) | 32,33 |
| 40 Fed. Reg. 33,029 (Aug. 6, 1975) | 33 |
| 46 Fed. Reg. 7,540 (Jan. 23, 1981) | 17 |
| 46 Fed. Reg. 36,969 (July 16, 1981) | 17 |
| 48 Fed. Reg. 33,376 (July 21, 1983) | 17 |

| | |
|---|-------------------------------------|
| 56 Fed. Reg. 23,360 (May 21, 1991) | 33-34,35,62,63 |
| * 59 Fed. Reg. 43,200 (Aug. 22, 1994) | 36,38,55 |
| 61 Fed. Reg. 65,120 (Dec. 10, 1996) | 31-32 |
| * 62 Fed. Reg. 39,058 (July 21, 1997)..... | 22,36,37,39,40,41,42,46,47,51,54,65 |
| 62 Fed. Reg. 46,517 (Sept. 3, 1997) | 16,65 |
| 74 Fed. Reg. 51,882 (Oct. 28, 2009)..... | 26 |
| D.C. Cir. R. 30(c) | 3 |
| Fed. R. App. P. 30(c) | 3 |
| Fed. R. App. P. 32(a)(7)(B)(i)..... | 69 |
| Fed. R. App. P. 32(a)(7)(C) | 69 |

GLOSSARY OF TERMS AND ABBREVIATIONS

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| AEA | Atomic Energy Act of 1954, as amended |
| Agreement | An agreement between the NRC and the State of New Jersey pursuant to Section 274b of the AEA, effective as of September 30, 2009 |
| ALARA | As Low As Reasonably Achievable |
| Commission or NRC | United States Nuclear Regulatory Commission |
| DP | Decommissioning Plan |
| LTC | Long-Term Control |
| LTR | License Termination Rule |
| mrem | Millirem |
| New Jersey Program | <i>See</i> Program |

| | |
|-------------------------------------|---|
| Newfield Facility or Facility | The industrial facility owned by Shieldalloy Metallurgical Corporation located in Newfield, New Jersey |
| Program | New Jersey's Radiation Protection Program |
| Shieldalloy | Shieldalloy Metallurgical Corporation |
| Staff | United States Nuclear Regulatory Commission Staff |
| State | State of New Jersey |
| TEDE | Total Effective Dose Equivalent |

STATEMENT REGARDING JOINT APPENDIX

Pursuant to D.C. Circuit Rule 30(c), the parties are utilizing the deferred-appendix option described in Rule 30(c) of the Federal Rules of Appellate Procedure.

JURISDICTIONAL STATEMENT

Basis for Agency's Jurisdiction – The NRC is authorized by Section 274b of the Atomic Energy Act (“AEA”), 42 U.S.C. § 2021(b) (2006), to enter into agreements that transfer regulatory authority over certain radioactive materials to the States. The NRC is permitted to enter into such an agreement with a state if the NRC “finds that the State program is . . . compatible with the Commission’s program for regulation of such materials, and that the State program is adequate to protect the public health and safety with respect to the materials covered by the proposed agreement.” 42 U.S.C. § 2021(d)(2) (2006). The AEA defines the categories of materials for which the NRC may transfer regulatory authority as including, *inter alia*, “source materials,” such as those that are present at Shieldalloy’s facility in Newfield, New Jersey (the “Facility”) and are involved in the instant Petition. *Id.* at § 2021(b). The NRC exercised its powers under Section 274b of the AEA to enter into an agreement with the State of New Jersey (the “Agreement”) pursuant to which it transferred regulatory authority over such materials within New Jersey to that State. Upon Shieldalloy’s petition to review the NRC’s transfer of authority over the Facility to New Jersey, this Court, in *Shieldalloy I*, vacated the transfer and remanded the matter to the NRC for further proceedings. On remand, the NRC reinstated the transfer of authority to New Jersey. On review of the reinstated transfer, this Court in *Shieldalloy II* again

vacated the transfer and remanded the matter to the NRC. Following this Court's remand in *Shieldalloy II*, the NRC – in the decision which is the subject of the instant Petition – again purported to exercise its powers under Section 274b of the AEA to reinstate the transfer of authority over the Facility to the State.

Basis for Court's Jurisdiction – The Court has jurisdiction over this matter pursuant to 28 U.S.C. § 2342(4) (2006), 42 U.S.C. § 2239(a) (2006), and 28 U.S.C. § 2344 (2006). The Administrative Orders Review Act, also known as the Hobbs Act, 28 U.S.C. §§ 2341-2351 (2006), gives federal courts of appeals “exclusive jurisdiction to enjoin, set aside, suspend (in whole or in part), or to determine the validity of . . . all final orders of the Atomic Energy Commission [now the NRC] made reviewable by section 2239 of title 42.” 28 U.S.C. § 2342(4). The provision of the AEA cited in the Hobbs Act applies to any proceeding “for the granting, suspending, revoking, or amending of any license . . . [and] for the issuance or modification of rules and regulations dealing with the activities of licensees” 42 U.S.C. § 2239(a)(1)(A)(2006). The Hobbs Act subjects to judicial review “[a]ny final order entered in any [NRC] proceeding of the kind specified in subsection (a) [of 42 U.S.C. § 2239].” *New Jersey v. NRC*, 526 F.3d 98, 102 (3d Cir. 2008).

Upon the entry of a “final order” by the NRC reviewable under the Hobbs Act, the Commission is required to give prompt notice thereof by service or publication in accordance with its rules. Any party aggrieved by the final order may, within 60 days after its entry, file a petition to review the order in the court of appeals wherein venue lies. 28 U.S.C. § 2344. The proper venue for seeking judicial review of a final NRC action relating to NRC licenses is “in the judicial circuit in which the petitioner resides or has its principal office, or in the United States Court of Appeals for the District of Columbia Circuit.” 28 U.S.C. § 2343.

The NRC decision in CLI-13-06 to reinstate the transfer of regulatory authority over the Facility to New Jersey was a final action by the NRC affecting Commission licenses in New Jersey because regulatory authority over the possession and use of nuclear materials held under licenses granted by the NRC was transferred to New Jersey as of the date of issuance of the NRC decision. CLI-13-06 at 24, JAx. *See Macias v. Kerr-McGee Corp.*, No. 92-3389C, 1993 WL 408357, at *4 (N.D. Ill. Oct. 12, 1993); *Sunflower Coal. v. NRC*, 534 F. Supp. 446, 448 (D. Colo. 1982) (“In effect, the NRC's supervision, acceptance, or termination of a state agreement is a licensing decision, since the NRC thereby ‘exercises’ its licensing authority in a particular state.”). The NRC’s reinstatement of the transfer of regulatory authority over the Facility to New Jersey is a “final order” affecting the NRC license held by Shieldalloy for the Facility.

Timeliness of Petition for Review – The transfer of NRC authority was effective as of the issuance of CLI-13-06 on August 5, 2013. Shieldalloy's Petition for Review was filed on October 1, 2013, within the sixty-day period established by the Hobbs Act.²

Finality of Agency Action – The NRC's reinstatement of its transfer to New Jersey of regulatory authority over the Facility is a final agency action with respect to the NRC license for that facility issued to Shieldalloy.

² 28 U.S.C. § 2344 states, in relevant part: "On the entry of a final order reviewable under this chapter, the agency shall promptly give notice thereof by service or publication in accordance with its rules. Any party aggrieved by the final order may, within 60 days after its entry, file a petition to review the order in the court of appeals wherein venue lies."

STATEMENT OF THE ISSUES PRESENTED FOR REVIEW

Before the NRC can approve an Agreement State application, the applying state must have a program for the control of radiation hazards that is compatible with the Commission's program for the regulation of the materials over which the state seeks to assume authority. 42 U.S.C. § 2021(d)(2). The state's program must also be adequate to protect public health and safety with respect to the categories of materials for which Agreement State status is sought. *Id.* The following issues arise from these statutory requirements and their interpretation by the Court in *Shieldalloy I* and *Shieldalloy II*:

1. Whether the NRC erred in reinstating the transfer of authority over the Facility to New Jersey despite the NRC's failure to assure compatibility of New Jersey's program for the control of radiation hazards ("the New Jersey Program" or "the Program") with the AEA's objective to "minimize danger to life or property." 42 U.S.C. § 2201(b).
2. Whether the NRC erred in reinstating the transfer of authority over the Facility to New Jersey despite the failure of the New Jersey Program to implement the provisions of the NRC's regulations at

10 C.F.R. §§ 20.1402 and 20.1403, which require compliance with the “as low as is reasonably achievable” (“ALARA”) principle.

3. Whether the NRC erred in reinstating the transfer of authority over the Facility to New Jersey despite the failure of the New Jersey Program to implement the requirements of the NRC’s regulations at 10 C.F.R. § 20.1403 that authorize the termination of radioactive materials licenses under restricted use criteria.
4. Whether, in light of these and other errors, the NRC’s reinstatement of the transfer of authority over the Facility to New Jersey was arbitrary and capricious and contrary to applicable law.

STATEMENT OF THE CASE

This Petition arises from an NRC decision to transfer regulatory authority over low-level radioactive materials held at facilities in New Jersey to that State pursuant to Section 274b of the AEA. That transfer was approved by the NRC even though the program developed by New Jersey for the control of radiation hazards fails to meet the statutory requirement that a state's program for the control of radiation hazards must be "compatible" with the NRC's program for the regulation of the materials over which the state seeks to assume authority. 42 U.S.C. § 2021(d)(2). In particular, the New Jersey Program excludes the ALARA principle, which is a central part of the NRC's regulatory system, in the termination of facility licenses.

The ALARA requirement mandates that a facility evaluate all decommissioning options to determine which results in the lowest total reasonably achievable dose. In some circumstances, as with Shieldalloy's Facility, the ALARA analysis shows that decommissioning to a restricted use set of standards results in the lowest dose. (In the case of the Facility, the restricted use decommissioning option happens to be the lowest cost decommissioning option as well, and therefore is in the best interest of both Shieldalloy and the public.) This result is obtained, in part, because the ALARA analysis compares the radiation dose potential from material left onsite as part of a restricted use decommissioning,

with the potential doses caused by the decommissioning to an unrestricted use standard, including the doses resulting from the removal, transport and offsite disposal of radioactive materials from a site.

In contrast, the New Jersey Program focuses only on the potential doses from materials left onsite. This myopic view ignores the potential doses associated with the removal, transport and offsite disposal of the radioactive materials: so long as the material is off of the site, the potential radiation doses to others, no matter how significant, are ignored. The Program's "not in my back yard" approach is thus incompatible with the comprehensive ALARA evaluation required by the NRC.

The NRC's transfer to New Jersey of regulatory authority over the Facility is arbitrary and capricious because the portion of New Jersey's Program that relates to facility decommissioning violates the compatibility criteria set by the NRC in that it fails to implement the provisions of 10 C.F.R. § 20.1403. Significantly, the transfer also aborts a nearly twenty-year process towards the safe decommissioning of the Facility in accordance with NRC regulatory requirements and negates the considerable and costly efforts by Shieldalloy (with constant NRC involvement) to achieve such decommissioning.

The unjustified departure from its own standards and from the requirements of the AEA renders arbitrary and capricious the NRC's decision to once again transfer jurisdiction over the Facility to New Jersey and warrants that the NRC be directed to rescind its transfer of regulatory authority over the Facility to New Jersey and retain authority over it.

STATEMENT OF FACTS

A. FACTS LEADING TO SHIELDALLOY II DECISION

The essential facts of this case are not in dispute; many of these facts are set forth in the Court's decisions in *Shieldalloy I* and *Shieldalloy II*, as described below. Between 1955 and 1998, Shieldalloy manufactured metal alloys at its Newfield Facility. Because some of the ores that the Facility processed contained small quantities of naturally occurring radioactive materials, Shieldalloy's manufacturing process resulted in slightly radioactive byproducts in the form of slag and baghouse dust. Shieldalloy held those materials on-site under a source materials license from the NRC. *See Shieldalloy I*, 624 F.3d at 491.

In the early 1990s, Shieldalloy took the first steps toward decommissioning the Facility. Based on discussions with the NRC staff ("Staff"), it developed a conceptual plan for on-site disposal of the on-site materials under conditions restricting the site's ultimate use. For its part, the NRC began developing, and in 1997 published, a final rule on the decommissioning of licensed facilities. The License Termination Rule ("LTR") allows licensees the option of disposing of radioactive materials on-site under restrictions designed to guarantee public health and safety. *Id.*

Over the next decade, the Staff and Shieldalloy engaged in extensive discussions regarding the on-site disposal of the materials at the Facility. Between 2002 and 2009, Shieldalloy submitted four successive versions of its decommissioning plan (“DP”) (an original DP and three revisions to it). The original DP and the first revision were rejected by the Staff; the second revision was accepted for review. The Staff declined to review the third revision of the DP, submitted in August 2009, because of the pending transfer of regulatory authority to New Jersey. Shieldalloy prepared or revised each of the three revisions based on the Staff’s comments on the previous version, an extensive site-specific “Interim Guidance” document provided by the Staff to Shieldalloy in 2004, and a generic three-volume regulatory guidance document issued by the NRC in 2006. *Id.* The original DP, and all three revisions to it, contained ALARA comparisons between several decommissioning alternatives, including “no-action,” “restricted use” and “unrestricted use.” (The third revision also evaluated incremental removal alternatives in which portions of the materials would be removed from the site and the site would then be decommissioned in accordance with “restricted use” requirements.) *See* Decommissioning Plan, Newfield, New Jersey, Rev. 1b (Aug. 2009) (incorporated into record by R9 (Shieldalloy’s Response to the Commission’s January 3, 2011 Order (Feb. 4, 2011)) (“DP Rev. 1b”), at 45-48, JAxX; Shieldalloy Letter to NRC submitting Rev. 1a of Decommissioning Plan

(June 30, 2006) (incorporated into record by R9 (Shieldalloy's Response to the Commission's January 3, 2011 Order (Feb. 4, 2011)), Appendix H at 1, JAxx; R4 (Decommissioning Plan, Newfield, New Jersey, Rev. 1 (Oct. 2005)), Vol. 1 at 75-76, JAxx. In each instance, the restricted use alternative was found to result in the lowest costs, as well as the lowest radiation exposures to the public. *See, e.g.*, DP Rev. 1b at xxiv-xxv, JAxx.

From the start, New Jersey strongly opposed the decommissioning approach proposed by Shieldalloy. Thus, when the Staff accepted the second revision to the DP for review and an adjudicatory proceeding was instituted before an NRC Atomic Safety and Licensing Board, New Jersey intervened in the proceeding, opposing approval of the DP, and raised numerous contentions challenging the DP with respect to the technical analyses performed by the licensee, arguing that the DP had not demonstrated compliance with the relevant standards (including the ALARA requirements prescribed in 10 C.F.R. § 20.1403), and contesting the legality of the regulatory avenues relied on in the DP. Thus, New Jersey questioned the role of the License Termination Rule's restricted use provisions, the use of the Long Term Control-Possession Only License, and the Commission's decommissioning regulations generally. *Shieldalloy Metallurgical Corporation* (Licensing Amendment Request for Decommissioning of the Newfield, New Jersey Facility), Memorandum and Order (Ruling on Hearing Requests), LBP-07-

5, 65 NRC 341, 353-54 (2007) (incorporated into record by R7 (Shieldalloy Comments on New Jersey's Application to Become an Agreement State (June 11, 2009)), JAxx.

In October 2008, New Jersey requested that the NRC transfer to the State regulatory authority over certain nuclear materials, pursuant to the "Agreement State" provision in the AEA. Under that provision, Congress has authorized the NRC to "enter into agreements with the Governor of any State providing for discontinuance of the regulatory authority of the [NRC]" and the assumption of authority by the state. 42 U.S.C. § 2021(b). As a precondition to making such an agreement, however, the NRC must find that the state's regulatory regime is "compatible with the [NRC's] program" and that the state's regime is "adequate to protect the public health and safety." *Id.* § 2021(d)(2); *Shieldalloy I*, 624 F.3d at 491.

The NRC has set forth thirty-six Compatibility Criteria, published in a policy statement, that it considers in evaluating the compatibility of the state and federal regulatory programs. A subsequent NRC policy statement clarified its evaluation process, interpreting the compatibility requirement as mandating that the state program must "not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on

a nationwide basis.” *Statement of Principles and Policies for the Agreement State Program; Policy Statement on Adequacy and Compatibility of Agreement State Programs*, 62 Fed. Reg. 46,517, 46,524 (Sept. 3, 1997). To carry out these policy statements, each element of the NRC’s program is assigned to one of five categories, A through E. For NRC program elements classified as “Category C,” each element of the state program must “embody the essential objective” of the corresponding NRC program element. The NRC determined that the License Termination Rule is a Category C program element. *Id.*; *Shieldalloy I*, 624 F.3d at 491-92, 496-97, discussing *Criteria for Guidance of State and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement*, 46 Fed. Reg. 7,540 (Jan. 23, 1981), as amended by 46 Fed. Reg. 36,969 (July 16, 1981) and 48 Fed. Reg. 33,376 (July 21, 1983).

The NRC evaluated New Jersey’s Program against the Compatibility Criteria and, after finding it adequate and compatible with the federal program, sought comments from the public on the proposed agreement. In response, Shieldalloy submitted comments setting forth a number of reasons why the New Jersey and NRC programs were incompatible. One of these reasons was that New Jersey’s Program failed to satisfy Compatibility Criterion 9, which requires that waste disposal standards for radioactive material “shall be in accordance with [10 C.F.R.] Part 20.”

The Staff did not address some of Shieldalloy's comments and rejected the rest. Based on the Staff's recommendations, the Commission approved the transfer of authority to New Jersey, effective on September 30, 2009. Upon approval of the transfer, the Staff forwarded the third revision of the DP (Rev. 1b) to New Jersey, which the Staff had declined to review due to the pendency of the transfer of regulatory authority to New Jersey. *See Shieldalloy I*, 624 F.3d at 491.

Only a few days after the transfer of authority, New Jersey notified Shieldalloy that the third revision of the DP did not meet New Jersey's regulatory requirements and directed Shieldalloy to submit a new plan that satisfied those requirements. New Jersey thus summarily terminated processing of Shieldalloy's license application and did not even address the previously ongoing Staff review of the DP.

The Court's opinion in *Shieldalloy I* describes what happened next: "Worried that it would now be forced to jettison its plans for on-site remediation and instead transfer the radioactive materials to a facility in Clive, Utah, Shieldalloy sought relief along multiple avenues. It requested an exemption from the relevant New Jersey regulatory provisions (and was denied). It filed a motion with the NRC to stay the transfer for regulatory authority (and was denied). And it filed the instant petition [in the D.C. Circuit] challenging the NRC's transfer." *Id.*

at 492. Upon review, the Court issued a unanimous opinion that found the NRC decision to transfer jurisdiction over the Facility to New Jersey to be arbitrary and capricious, vacated the transfer, and remanded the matter to the NRC for further proceedings. *Id.* at 495 & 497.

On remand from the D.C. Circuit's decision in *Shieldalloy I*, the NRC reinstated the transfer of its regulatory authority over the Newfield Facility to New Jersey. *Shieldalloy Metallurgical Corp.* (License Amendment for Decommissioning of the Newfield, New Jersey Site), CLI-11-12, 74 NRC 460 (2011). *Shieldalloy* filed a petition for review with this Court challenging the NRC's reinstatement of its transfer of regulatory authority over the Facility and, on February 19, 2013, the Court again vacated the transfer and remanded the case to the NRC for further proceedings consistent with the Court's opinion. *Shieldalloy II*, 707 F.3d 371. In particular, the Court noted various inconsistencies and puzzling statements in the NRC's order relating to the ALARA principle embodied in the Commission's license termination regulations at 10 C.F.R. § 20.1403(a). *See id.* at 379-83. Accordingly, the Court concluded that the NRC's order "lacked an apparent textual basis" and that "our inability to understand the key regulatory materials purportedly guiding the agency's exercise of control over decommissioning requires another remand." *Id.* at 373, 382.

B. POST-REMAND PROCEEDINGS

Following the remand from this Court's 2013 decision, the NRC issued its Memorandum and Order reinstating again the transfer of authority over the Newfield Facility to New Jersey. CLI-13-06 at 24, JAx. Despite claiming to "provide a textual analysis and additional clarifying explanation of our interpretation of § 20.1403(a) in light of the court's remand" (*id.* at 3, JAx), the Memorandum and Order presents a novel, strained construction of Section 20.1403(a) which conflicts with both the NRC's previous statements and practice and the fundamental public safety goal embodied in the ALARA principle. The NRC also deems irrelevant the New Jersey Program's lack of a provision analogous to Section 20.1403(a). *Id.* at 23, JAx. The Memorandum and Order then proceeds to "reaffirm our finding that New Jersey's regulatory program is adequate and compatible with our program within the meaning of AEA § 274," and reinstates the transfer of regulatory authority to New Jersey. *Id.* at 23-24, JAx (footnote omitted). The Commission did not provide Shieldalloy (or New Jersey) the opportunity to comment on the NRC's position, either before or after it issued CLI-13-06.

SUMMARY OF THE ARGUMENT

A government agency must articulate a satisfactory explanation for its actions if they are to survive review under the “arbitrary or capricious” standard. An agency must also adequately address legitimate objections and explain departures from its precedent.

The NRC failed to provide a satisfactory explanation for accepting New Jersey’s Radiation Protection Program despite that Program’s incompatibility with NRC regulations in the area of facility decommissioning. For this reason, the NRC’s approval of New Jersey’s Agreement State application is arbitrary and capricious and should again be set aside.

In order for a state program for the control of radiation hazards to be compatible with the NRC’s, the state’s program elements for which the counterpart NRC regulations are classified as compatibility Category C must “embody the essential objective” of the corresponding NRC program elements. With respect to decommissioning of nuclear facilities, the essential objective of the NRC’s License Termination Rule (“LTR”) – as specifically set forth in the statement of considerations accompanying those regulations – is “to provide specific radiological criteria for the decommissioning of lands and structures . . . to ensure that decommissioning will be carried out without undue impact on public health

and safety and the environment.” R2 (*Final Rule, Radiological Criteria for License Termination*), 62 Fed. Reg. 39,058, 39,058 (July 21, 1997), JAxX.

A critical aspect of the LTR (which sets forth the radiological criteria for the decommissioning of NRC licensed facilities, *see* 10 C.F.R. § 20.1401), is the implementation of a principle that is central to the NRC’s radiation protection regulations: decommissioning must be conducted so that the radiation doses resulting from the decommissioning process are as low as reasonably achievable (“ALARA”). To “embody the essential objective” of the LTR, New Jersey’s Program would need to incorporate the ALARA principle into its facility decommissioning regulations, in addition to adopting a dose limit that is consistent with that contained in the NRC regulations. The Program, however, does not adopt or incorporate the ALARA principle in the decommissioning of facilities. To the contrary, the Program does not allow the use of ALARA comparisons in the selection of license termination methods and in so doing forecloses the decommissioning option for the Facility that would result in the lowest radiation exposures.

Thus, New Jersey considers only the final status of the licensed site, and ignores the impact of the overall decommissioning process. New Jersey forces licensees to carry out unrestricted release options that result in dose potentials that

are not ALARA. Its Program is a “not in my back yard” approach in which unnecessary radiation exposure risks are thrust upon the people of New Jersey and other states, including the exposures in preparing the materials for shipment, the transportation risks across New Jersey and states along the transportation routes, the exposure risks during disposal at the final disposal site, and the radiological risks after final disposal. Those risks are all cavalierly ignored by the Program.

New Jersey’s Program, as it applies to Shieldalloy, is therefore fundamentally inconsistent with the NRC’s regulatory regime and, if implemented, would result in unnecessary radiation doses to the public, cause severe financial harm to Shieldalloy, render no benefit to the people of New Jersey, and introduce avoidable exposure risks all the way from New Jersey to the final disposal site.

The LTR addresses the few licensed sites containing large quantities of materials contaminated with low-level radioactivity where health and the environment may be best protected by on-site stabilization and disposal. To permit the safe decommissioning of those sites, the LTR includes the option (in 10 C.F.R. § 20.1403) of terminating a license under “restricted use” conditions such that radioactive materials are allowed to remain at a site upon the implementation of approved stabilization methods and subject to specified controls. The NRC specifically identified Newfield as one facility for which the on-site disposal option

could be beneficial. R3 (SECY-03-0069, Results of the License Termination Rule Analysis) (2003), Attachment 1 at 10, JAx. Indeed, the NRC Staff worked with Shieldalloy for nearly twenty years towards the implementation of the on-site disposal option.

Shieldalloy had repeatedly presented to the NRC, without challenge from the agency, analyses showing how on-site stabilization and disposal of the radioactive materials would minimize radiation doses and meet the ALARA criterion.³ Yet, the NRC's subsequent approval of New Jersey's Agreement State application was made with full knowledge that the New Jersey Program precludes license termination based on on-site stabilization and disposal of radioactive materials. The NRC does not explain how it could find New Jersey's Program compatible with its regulations when the Program fails to achieve the "essential objective" of the LTR – minimizing public exposures to radiation.

The incompatibility between the facility decommissioning elements of the New Jersey Program and the NRC regulations is sufficient in itself to require that the NRC's transfer of regulatory authority over the Facility to New Jersey be

³ The original DP and all successive revisions to it contained comparative analyses showing that restricted use decommissioning was the preferable option both from the cost and ALARA standpoints. The results of those analyses have never been challenged by the NRC.

rescinded. In addition, in reviewing agency action, a court will also examine the record as a whole. Examining the totality of the NRC's repeated actions in disregard of its own regulations and compatibility criteria, as well as the requirements of the AEA, compels the conclusion that the NRC has acted in an arbitrary and capricious manner, warranting the rescission of its transfer of authority.

STANDING

Shieldalloy held NRC Source Materials License No. SMB-743 for its Facility in Newfield, New Jersey. Effective September 30, 2009, the NRC transferred to New Jersey the regulatory authority over the possession and use of certain nuclear materials held under licenses granted by the Commission. 74 Fed. Reg. 51,882, 51,883 (Oct. 8, 2009). Shieldalloy's NRC license for the Facility was one of those for which regulatory authority was transferred to New Jersey by the NRC action. This transfer is acknowledged by the NRC. CLI-13-06 at 1, JAxX. On August 5, 2013, notwithstanding this Court's decisions in *Shieldalloy I* and *Shieldalloy II*, the NRC reinstated its transfer of regulatory authority over the Facility to New Jersey. *Id.*

This latest NRC action has had a direct and detrimental impact on Shieldalloy and could potentially result in Shieldalloy's bankruptcy. *See* Affidavit of Hoy E. Frakes, Jr., attached to Shieldalloy's Amended Motion for Stay Pending Judicial Review of Commission Action Transferring Regulatory Authority over Newfield, New Jersey Facility to the State of New Jersey (October 14, 2009), at ¶ 10, JAxX (available at: <http://pbadupws.nrc.gov/docs/ML0929/ML092931243.pdf>). In this Petition, Shieldalloy is asking the Court to provide redress by again reversing the transfer to New Jersey of NRC regulatory authority over the Facility.

This Court has noted: “In many if not most cases the petitioner’s standing to seek review of administrative action is self-evident; no evidence outside the administrative record is necessary for the court to be sure of it. In particular, if the complainant is ‘an object of the action (or forgone action) at issue’ – as is the case usually in review of a rulemaking and nearly always in review of an adjudication – there should be ‘little question that the action or inaction has caused him injury, and that a judgment preventing or requiring the action will redress it.’” *Sierra Club v. EPA*, 292 F.3d 895, 899-900 (D.C. Cir. 2002) (citing *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561-62 (1992)). Here, based on the above facts, it is “self-evident” that Shieldalloy has standing to challenge the NRC’s action affecting its license.

ARGUMENT

I. STANDARD OF REVIEW

The Administrative Procedure Act (5 U.S.C. § 551 *et seq.* (2006)) requires a court to “hold unlawful and set aside agency action” if it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A) (2006). An agency action is arbitrary and capricious if the agency “entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). As this Court noted in *Shieldalloy I*,

In reviewing agency action that is alleged to be arbitrary or capricious, we are “not to substitute [our] judgment for that of the agency,” but we must ensure that the agency has “examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a ‘rational connection between the facts found and the choice made.’” *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983) (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168, 83 S.Ct. 239, 9 L.Ed.2d 207 (1962)). Encompassed in the latter duty, of course, is the obligation of an agency to explain any important changes of policy or legal interpretation. *Ramaprakash v. FAA*, 346 F.3d 1121, 1124 (D.C. Cir. 2003). And agencies must evaluate parties’ proposals of “significant and viable” alternatives. *Farmers Union Cent. Exch., Inc. v. FERC*, 734 F.2d 1486, 1511 n. 54 (D.C. Cir.1984).

Shieldalloy I, 624 F.3d at 492-93.

While an agency's interpretation of its own regulations is typically afforded substantial deference, such deference is not unlimited. Thus, an agency's interpretation of its own regulations is not entitled to receive deference from a reviewing court when such interpretation is plainly erroneous or inconsistent with the regulation. *See Decker v. Nw. Env'tl. Def. Ctr.*, 133 S. Ct. 1326, 1337 (2013). Similarly, agency interpretations that are confusing and internally contradictory should be rejected. "Although agencies have flexibility in interpreting their own rules, their interpretations must not be vague and indecisive." *Rapoport v. SEC*, 682 F.3d 98, 107 (D.C. Cir. 2012) (quotation omitted). Indeed, "where the agency writes an opaque and ambiguous rule and then by fiat proclaims its meaning without any effort to consider its text or dispel its mysteries, the agency's insistence on deference is misplaced. 'We cannot defer to what we cannot perceive.'" *Shieldalloy II*, 707 F.3d at 382 (quoting *Int'l Longshoremen's Ass'n v. Nat'l Mediation Bd.*, 870 F.2d 733, 736 (D.C. Cir.1989)).

Interpretations that conflict with prior constructions of a regulation may not be entitled to be treated with substantial deference by a reviewing court. "[A]n agency's interpretation of a . . . regulation that conflicts with a prior interpretation is entitled to considerably less deference than a consistently held agency view."

Thomas Jefferson Univ. v. Shalala, 512 U.S. 504, 515 (1994) (quotations omitted). *Accord Akzo Nobel Salt, Inc. v. Fed. Mine Safety & Health Review Comm’n*, 212 F.3d 1301, 1304-05 (D.C. Cir. 2000) (“An agency’s interpretation of its own regulations is entitled to no deference if it has, under the guise of interpreting a regulation, created *de facto* a new regulation.”); *Comcast Cable Commc’ns, LLC v. FCC*, 717 F.3d 982, 999 (D.C. Cir. 2013) (quotations omitted). *See also Christopher v. SmithKline Beecham Corp.*, 132 S. Ct. 2156, 2166 (2012) (“[D]eference is likewise unwarranted when there is reason to suspect that the agency’s interpretation does not reflect the agency’s fair and considered judgment on the matter in question. This might occur when the agency’s interpretation conflicts with a prior interpretation.”) (quotations and citations omitted). Indeed, agencies are obligated to offer a reasoned explanation of changes in policy or legal interpretations. *Ramaprakash*, 346 F.3d at 1124; *Dillmon v. NTSB*, 588 F.3d 1085, 1089-90 (D.C. Cir. 2009).

An agency must explain departures from its precedent and adequately address legitimate objections to its proposed actions. “Reasoned decision making . . . necessarily requires the agency to acknowledge and provide an adequate explanation for its departure from established precedent.” *Dillmon*, 588 F.3d at 1089-90; *see also Transmission Agency of N. Cal. v. FERC*, 495 F.3d 663, 671 (D.C. Cir. 2007); *Mistick PBT v. Chao*, 440 F.3d 503, 512 (D.C. Cir. 2006). Also,

“[a]n agency’s failure to respond meaningfully to objections raised by a party renders its decision arbitrary and capricious. We have stressed that [u]nless the [agency] answers objections that on their face seem legitimate, its decision can hardly be classified as reasoned.” *PPL Wallingford Energy LLC v. FERC*, 419 F.3d 1194, 1198 (D.C. Cir. 2005) (quotations and citations omitted).

II. THE ALARA PRINCIPLE IS INTENDED TO REDUCE RADIATION EXPOSURES TO THE PUBLIC AS FAR BELOW REQUIRED DOSE LIMITS AS IS PRACTICAL, BASED UPON A COMPARATIVE ANALYSIS AMONG POTENTIAL ALTERNATIVES

A. Application of the ALARA principle is established by law and mandated by Commission regulations

The ALARA principle is an integral part of the AEA’s two-prong approach to radiological protection. *First*, in licensing the possession and use of radioactive materials, the Commission must ensure protection of public health and safety. *See* AEA § 2d (42 U.S.C. § 2012(d)); § 3d (42 U.S.C. § 2013(d)); § 63b (42 U.S.C. § 2093(b)); § 69 (42 U.S.C. § 2099)). *Second*, the Commission may establish and enforce such standards as it “deem[s] necessary or desirable . . . to protect health or to minimize danger to life or property.” AEA § 161b, 42 U.S.C. § 2201(b). The Commission’s ALARA standards implement its power under Section 161b to establish standards to “minimize danger to life or property” beyond levels which constitute “adequate protection.” *Resolution of Dual Regulation of Airborne Effluents of Radioactive Materials*, 61 Fed. Reg. 65,120, 65,123 (Dec. 10, 1996)

(explaining the statutory basis of the NRC's overall ALARA approach). Whereas “a level of ‘adequate protection’ must be defined and enforced without regard to economic cost,” the NRC may also set criteria for reduction of risk “to a level below that associated with ‘adequate protection’ to ‘minimize danger to life or property’ with economic cost and other factors as permissible balancing considerations.” *Id.*

The ALARA standard originated as the “as low as practicable” (“ALAP”) principle established by the National Council on Radiation Protection and Measurements and was subsequently adopted by the Federal Radiation Council.⁴ The Atomic Energy Commission, the predecessor agency to the NRC, incorporated the ALAP principle into its regulations in 1970.⁵ 35 Fed. Reg. at 18,386. At that

⁴ As early as 1960, Federal Radiation Council guidance instructed that “every effort should be made to encourage the maintenance of radiation doses as far below this guide as practicable.” *Background Material for the Development of Radiation Protection Standards*, Report No. 1 at 37 (May 13, 1960), available at: http://www.epa.gov/radiation/docs/federal/frc_rpt1.pdf.

⁵ The paragraph added in 1970 as 10 C.F.R. § 20.1(c) provided that Commission licensees “should, in addition to complying with the requirements set forth in this part, make every reasonable effort to maintain radiation exposures, and releases of radioactive materials in effluents to unrestricted areas, as far below the limits specified in this part as practicable. The term ‘as far below the limits specified in this part as practicable’ means as low as is practicably achievable taking into account the state of technology, and the economics of improvements in relation to benefits to the public health and safety and in relation to the utilization of atomic energy in (Footnote continued on next page)

time, the Commission noted that it “has always subscribed to the general principle that, within radiation protection guides, radiation exposures to the public should be kept as low as practicable” and that “[t]his general principle has been a *central one* in the field of radiation protection for many years.” *Id.* (emphasis added). Under the 1970 regulations, determination of ALAP levels required the consideration of case-specific factors. *See York Comm. for a Safe Env’t v. NRC*, 527 F.2d 812, 815 (D.C. Cir. 1975).

In 1975, the NRC amended the language “as far below the limits specified in this part as practicable” in 10 C.F.R. § 20.1(c) to “as low as is reasonably achievable” to conform to the International Commission on Radiological Protection’s change in terminology. *Change in Terminology for “as low as practicable” Limits*, 40 Fed. Reg. 33,029, 33,029 (Aug. 6, 1975). There is no substantive difference between the two terminologies. *See Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238, 243 n.6 (1984).

In a 1991 rulemaking, the NRC formally established the ALARA principle as a requirement, specified in 10 C.F.R. § 20.1101(b), to be implemented in the radiation protection programs of all licensees. *Standards for Protection Against*

the public interest.” *Control of Releases of Radioactivity to the Environment*, 35 Fed. Reg. 18,385, 18,387 (Dec. 3, 1970).

Radiation, 56 Fed. Reg. 23,360, 23,396 (May 21, 1991). In that rulemaking, the Commission recognized “the importance of the ALARA concept to an adequate radiation protection program” by adopting the “requirement that all licensees include provisions for maintaining radiation doses and intakes of radioactive materials as low as is reasonably achievable as part of their radiation protection programs.” *Id.* at 23,367. The NRC also reaffirmed that it views the ALARA principle as the “means to keep exposures well below the limits established by the Commission.” *Id.* The NRC further noted that a quantitative cost-benefit analysis “is useful for those situations where both costs and benefits (dose reduction) can be quantitated, such as in shielding design or *analysis of decontamination methods.*” *Id.* (emphasis added).

The ALARA principle has thus been incorporated throughout the NRC’s regulations concerning radiological protection.⁶ Consistent with its genesis and regulatory history, ALARA requires licensees to “mak[e] every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is

⁶ In addition to explicitly requiring compliance with the ALARA principle in the provisions relevant to the termination of NRC licenses, discussed *infra*, the following NRC regulations in 10 C.F.R. also impose ALARA requirements: (1) § 20.1003; (2) § 20.1101; (3) § 20.1206; (4) § 20.1301; (5) § 20.1601; (6) § 20.1702; (7) § 20.1704; (8) § 20.2105; (9) § 20.2203; (10) § 34.3; (11) § 34.42; (12) Appendix A to Part 40; (13) § 50.34; (14) § 50.66; (15) § 72.3; and (16) § 72.126.

practical consistent with the purpose for which the licensed activity is undertaken.”

10 C.F.R. § 20.1003 (2009). The Commission has stated in numerous contexts that the ALARA standard is a fundamental operating principle designed to prevent radiological exposures to the public or releases to the environment beyond the minimum amount that cannot be reasonably avoided, regardless of the absolute value of the dose limit set forth in a regulation. *See, e.g.*, 10 C.F.R. § 20.1101(b); 56 Fed. Reg. at 23,367; *Shieldalloy*, CLI-11-12, 74 NRC at 480; NUREG-0586, *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, Supplement 1* (Nov. 2002), at 2-6 n.(a) (available at <http://adamswebsearch.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML023500395>). Implementation of ALARA in all regulatory contexts is not discretionary, but is mandated by both the underlying statute and over fifty years of Commission regulation and policy-making.

B. The NRC has explicitly mandated the implementation of the ALARA principle in the decommissioning of licensed facilities

When the NRC set out to establish criteria for the decommissioning of licensed nuclear facilities, it made it clear that it intended to require that decommissioning activities implement the ALARA principle. Thus, in proposing what ultimately became the License Termination Rule, the NRC advised that “[u]nder the ALARA concept, decommissioning activities are continued beyond

meeting applicable risk/dose limits in efforts to reduce radiation exposures As Low As Reasonably Achievable (ALARA).” R1 (*Proposed Rule, Radiological Criteria for Decommissioning*), 59 Fed. Reg. 43,200, 43,208 (Aug. 22, 1994) (“Proposed LTR”), JAx. The Commission went on to define how licensees should include ALARA in their decommissioning activities:

The proposed rule would also require that the licensee reduce any residual radioactivity to as close to indistinguishable from background as reasonably achievable. ALARA considerations are to include all significant risks to humans and the environment resulting from the decommissioning process, and licensees are to demonstrate why further reductions below the limit are not reasonably achievable.

Id., 59 Fed. Reg. at 43,219, JAx.

In the LTR, as finally issued in 1997, the NRC confirmed that it would require the performance of ALARA analyses as a means for “achievement of exposures that are ALARA.” R2 (*Final Rule, Radiological Criteria for License Termination*), 62 Fed. Reg. 39,058, 39,065 (July 21, 1997), JAx. We turn next to what “ALARA analyses” must be performed by a licensee seeking to decommission a facility.

C. Implementation of the ALARA principle for facility decommissioning requires analysis of the doses from alternative decommissioning methods

The NRC has long conceded that Shieldalloy’s proposed decommissioning of the Facility must implement the ALARA principle: “The ALARA principle, as

applied in the license termination rule, defines the maximum permissible annual dose as 25 mrem TEDE, but directs further that exposures should be minimized, such that they will be ‘as low as is reasonably achievable’ below the 25 mrem limit.” *Shieldalloy Metallurgical Corp.* (Decommissioning of the Newfield, New Jersey Site), CLI-10-8, 71 NRC 142, 156-57 (2010). In order to decommission a facility in accordance with the ALARA principle, a licensee must determine a decommissioning method which not only meets specified dose criteria, but also reduces exposures to the public to a level that is ALARA. *See* 10 C.F.R. § 20.1003; 59 Fed. Reg. at 43,208, JAx. ⁷

Under the LTR, sites may be decommissioned so that, after decommissioning is completed, a site is released for either unrestricted or restricted use. ⁸ *See* 10 C.F.R. §§ 20.1402-03. In either case, a licensee must (1) remediate

⁷ The NRC’s assertion that the maximum dose standard imposed by the New Jersey regulations, 15 mrem, is sufficiently protective of public safety (CLI-13-06 at 3, JAx), is thus irrelevant for purposes of ALARA. As further discussed below, any dose standard that does not include ALARA, regardless of numerical value, lacks a key aspect of the NRC’s radiation protection program and is therefore not compatible with the federal program.

⁸ As its name indicates, a site is released for “unrestricted use” if, after completion of decommissioning, all potential uses of the site are permissible. On the other hand, in a “restricted use” release, restrictions are placed on the site’s use, such as “limiting the time period that an individual spends onsite or [] restricting agricultural or drinking water use.” LTR, 62 Fed. Reg. at 39,066, JAx. Sometimes, the terms “unrestricted release” and (Footnote continued on next page)

the site to specified dose limits, i.e. 25 mrem per year; and (2) “maintain ALARA doses,” which the NRC has explained requires that “the licensee must make *every reasonable effort* to reduce the dose as far below the specified limits as is practical, taking into account the state of technology and economics (*see* 10 CFR 20.1003).” R5 (NUREG-1757), Vol. 1, Rev. 2, at 6-1, JAxX (emphasis added). The analysis required to demonstrate achievement of ALARA levels entails a broad evaluation of “all significant radiological and non-radiological risks resulting from residual radioactivity and from the decommissioning process itself.” Proposed LTR, 59 Fed. Reg. at 43,208, JAxX.

In developing the LTR, the NRC recognized stakeholder concerns that the new ALARA requirements for license termination “would establish cleanup requirements which could result in an overall risk increase, or in risk transference, rather than risk reduction. For example, in an attempt to clean up a site for decommissioning, the licensee may increase risk to persons along transportation routes and at the site where the material is finally disposed by transporting large volumes of debris from the site.” *Id.* at 43,224, JAxX. The Commission responded to these concerns by developing the requirement that “the licensee, when determining ALARA, consider all significant radiation doses and risks resulting

“restricted release” are used as a shorthand reference for the conditions that exist following the two forms of decommissioning.

from residual radioactivity and the decommissioning process itself, including transportation and disposal of radioactive wastes generated in the process.” *Id.* Thus, in the case of a licensee proposing the restricted use method of decommissioning, the LTR mandates a deliberate and comprehensive comparison of all feasible alternatives in order to ensure protection of public health and safety:

To support a request for restricted use, a licensee would perform an *ALARA analysis of the risks and benefits of all viable alternatives and include consideration of any detriments*. This could include estimated fatalities from transportation accidents that might occur as the result of transport of wastes from cleanup activities, and societal and socioeconomic considerations such as the potential value to the community of unrestricted use of the land.

62 Fed. Reg. at 39,069, JAx (emphasis added); *accord* 10 C.F.R. § 20.1403(a).

The requirement to include “all viable alternatives” in the ALARA analysis makes explicit the required scope of the analysis.

Also, because onsite decommissioning under a license for restricted use does not involve the “transport of wastes from cleanup activities,” the ALARA analysis required by the LTR must involve comparing, *inter alia*, the detriments of leaving waste materials on site and thus losing “the potential value to the community of unrestricted use of the land” versus the detriments from the “estimated fatalities from transportation accidents that might occur as the result of transport of wastes from cleanup activities.” *Id.* That is, the ALARA analysis *requires* comparing

benefits and detriments of leaving the materials onsite under a restricted use license versus those accruing from removing them from the site to implement an unrestricted use form of decommissioning. *See Shieldalloy II*, 707 F. 3d at 380.

In sum, the LTR and associated guidance clearly direct licensees pursuing decommissioning to conduct a full cost-benefit *comparative* analysis in order to select and implement the decommissioning method which achieves ALARA levels. *See* 62 Fed. Reg. at 39,066, JAxX (“The Commission also believes that, in any ALARA analysis conducted to support decisions about site cleanup, all reasonably expected benefits and detriments resulting from the cleanup activities should be taken into consideration in balancing costs and benefits.”). Construed in this context, “an ALARA analysis of the risks and benefits of all viable alternatives” (*Id.* at 39,069, JAxX) plainly requires a cost-benefit comparison of the outcomes of all viable scenarios involving restricted and unrestricted use decommissioning. A licensee is eligible for the restricted use decommissioning option if its ALARA analysis demonstrates that, in comparison with the unrestricted use option, “the residual levels associated with restricted conditions are ALARA.” 10 C.F.R. § 20.1403(a). Therefore, to satisfy the ALARA requirement in the LTR, a licensee that contemplates restricted use decommissioning must undertake a careful analysis of available alternatives to determine and implement the decommissioning method with the lowest dose risk

to the public that is reasonably achievable. Failure to perform an ALARA analysis for “all viable alternatives” would be a clear violation of NRC requirements.

III. THE NRC’S POST HOC INTERPRETATION OF THE ALARA PRINCIPLE AS APPLIED TO ITS LICENSE TERMINATION RULE IS CONFUSING, INTERNALLY CONTRADICTORY, AND INCONSISTENT WITH THE AGENCY’S PRIOR GUIDANCE AND PRACTICE

A. Section 20.1403(a) is intended to implement the policy goals of ALARA

As discussed *supra*, ALARA is a vital component of the NRC’s radiation protection regime that requires licensees to “mak[e] every reasonable effort to maintain exposures to radiation as far below the dose limits . . . as is practical,” based on various “societal and socioeconomic considerations.” 10 C.F.R. § 20.1003. For NRC licensees pursuing decommissioning, the LTR mandates an ALARA analysis as a means for “achievement of exposures that are ALARA.” LTR, 62 Fed. Reg. at 39,065, JAx.

The NRC has made decommissioning under a restricted use alternative permissible and has declared that, in certain cases, “[t]he restricted use alternative could provide additional flexibility in optimizing the expenditure of resources to protect public health and safety.” *Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities*, NUREG-1496 (1997) (incorporated into record by R2

(LTR)) (“NUREG-1496”), Vol. 1 at 2-4, JAx. A licensee proposing the restricted use form of decommissioning must, however, support its decommissioning method selection with “an ALARA analysis of the risks and benefits of all viable alternatives.” LTR, 62 Fed. Reg. at 39,069, JAx. In this manner, the ALARA principle, as applied in 10 C.F.R. § 20.1403(a), requires that licensees reduce exposures to the public to the maximum extent feasible in order to achieve decommissioning outcomes that are ALARA.

B. A reading of Section 20.1403(a) that requires comparison of the dose reduction benefits of restricted and unrestricted use decommissioning alternatives is consistent with the Court’s interpretation in *Shieldalloy II*

In *Shieldalloy II*, this Court considered the nature of the ALARA analysis called for under Section 20.1403(a) in order to resolve “an important question of public safety that demands great clarity and precision, neither of which the [NRC] has supplied.” 707 F.3d at 373. The Court examined Section 20.1403(a) in the context of *Shieldalloy*’s argument that the failure of New Jersey’s regulations to “provide[] for an eligibility test for restricted release predicated on a comparative application of the ALARA principle” renders the New Jersey rules on decommissioning incompatible with the NRC’s corresponding regulations. *Id.* at 378. The Court’s analysis scrutinized the regulatory language, its history and application by the NRC, and the differing interpretations of the regulation

advanced by Shieldalloy and the NRC in their submissions to the Court. *See id.* at 378-83.

Under the Court's interpretation of the meaning of Section 20.1403(a), the provision "appears to stand for the proposition that a licensee is eligible for restricted release upon showing that it has performed an ALARA analysis of *restricted* release decommissioning options, and the results of that analysis have caused it not to pursue unrestricted release." *Id.* at 379 (emphasis in original). As the Court noted, the NRC's construction of this provision would mean that "under § 20.1403(a) a licensee can qualify for restricted release without having to make any showing about unrestricted release." *Id.* The Court went on to point out that the NRC's rejection of the need for an ALARA analysis comparing unrestricted and restricted release in order to demonstrate eligibility for restricted release not only "jars with the NRC's insistence that it 'explicitly expressed a preference for unrestricted release in adopting' the LTR," but also "seems in tension with" the second sentence of Section 20.1403(a), which refers to consideration of traffic accidents, "an important concern for licensees pursuing unrestricted release." *Id.* at 380.

Due to the confusion caused by the NRC's reading of the regulation, the Court looked to other NRC statements and regulations for clarification. As the

Court discovered, however, those authorities raise their own inconsistencies and “only deepen the confusion.” *Id.* For instance, the NRC’s definition of ALARA in Section 20.1003 as a means to “cut radiation exposure ‘as far below the dose limits . . . as is practical’” seems “completely alien to the NRC’s reading of § 20.1403(a), under which ALARA is used to assess the cost-efficiency of attaining radiation levels *at those limits.*” *Id.* Moreover, the NRC’s decommissioning guidance set forth in NUREG-1757 “evinces a clear expectation that a licensee must compare unrestricted and restricted release in order to establish eligibility under § 20.1403(a).” *Id.* at 381.

Ultimately, the Court, while stopping short of endorsing either party’s interpretation of Section 20.1403(a), concluded that the NRC generic guidance documents and communications with Shieldalloy “can reasonably be read to call for precisely the kind of comparative dose analysis that Shieldalloy claims is contemplated by § 20.1403(a).” *Id.* As the Court observed, Section 20.1403(a) requires a licensee to support its proposed choice of restricted use decommissioning with an ALARA analysis that indicates why the unrestricted use alternative, which is the one preferred by the NRC, was not chosen. *See id.* at 379. This ALARA analysis, in turn, must consider “any detriments, such as traffic accidents” (10 C.F.R. § 20.1403(a)), which implicitly refers to one of the potential risks of unrestricted release decommissioning, i.e., moving contaminated materials

to offsite disposal, and in general should be consistent with the ALARA policy's essential goal of "insisting on cost-beneficial radiation reductions below maximum dose limits." *Shieldalloy II*, 707 F.3d at 380. As the Court suggested, in order to reconcile the language of Section 20.1403 with NRC regulatory requirements and with the NRC's previous interpretation of this provision, it is not only reasonable but necessary to engage in a comparative evaluation of the radiation outcomes of unrestricted and restricted use decommissioning scenarios.

C. The NRC's attempt to explain Section 20.1403(a) obfuscates rather than clarifies its meaning

In CLI-13-06, the Commission purports to "provide a textual analysis and additional clarifying explanation of our interpretation of § 20.1403(a) in light of the court's remand." CLI-13-06 at 3, JAx. Despite offering an extended discussion of Section 20.1403(a), the NRC's discourse on its meaning, like the NRC's prior ALARA argument that "baffled" the Court (*Shieldalloy II*, 707 F.3d at 379), further obscures the meaning of the provision and runs contrary to ALARA's essential policy objective.

In order to understand the meaning of the restricted use provisions in Section 20.1403(a), one must go back to the explanations provided in the LTR itself, something the NRC studiously avoids in CLI-13-06. In the LTR's Statement of Considerations, the Commission related how, in the proposed rule issued for public

comment in 1994, restricted use decommissioning would be deemed appropriate only in situations where unrestricted use decommissioning would be “prohibitively expensive” or if there would be “net public or environmental harm” in achieving unrestricted release of the site. 62 Fed. Reg. at 39,069, JAx. Upon further examination and consideration of comments from the public, the NRC decided to expand the situations for which restricted use decommissioning would be appropriate by including an ALARA standard under which “a licensee would perform an ALARA analysis of the risks and benefits of all viable alternatives and include consideration of any detriments. This could include estimated fatalities from transportation accidents that might occur as the result of transport of wastes from cleanup activities, and societal and socioeconomic considerations such as the potential value to the community of unrestricted use of the land.” *Id.*

The expanded definition of the circumstances under which restricted use decommissioning would be permitted led to the identification in the regulations of two situations in which the unrestricted use alternative, which is normally preferred, would yield to the restricted use option: (1) if the unrestricted use alternative was not viable due to net public or environmental harm; or (2) if, while the unrestricted use option was viable, it should not be chosen because “an ALARA analysis of the risks and benefits of all viable alternatives [that included] consideration of any detriments” (62 Fed. Reg. at 39,069, JAx) demonstrated that

the potential doses resulting from implementation of the restricted use option are ALARA. The first situation is captured in the initial clause of the first sentence of Section 20.1403(a), i.e., that “further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 would result in net public or environmental harm.” The second situation is captured in the second clause of the first sentence, “[if] further reductions in residual radioactivity necessary to comply with the provisions of § 20.1402 . . . were not being made because the residual levels associated with restricted conditions are ALARA.” 10 C.F.R. § 20.1403(a). As noted in the Statement of Considerations of the LTR, the ALARA analysis called for in this second clause must include the “analysis of the risks and benefits of all *viable* alternatives and include consideration of any detriments.” 62 Fed. Reg. at 39,069, JAx (emphasis added).

This reading of the regulation is perfectly consistent with both the language of the LTR and the underlying mandate of ALARA. The interpretation propounded by the NRC, which limits the ALARA analysis to considering only alternative ways to implement the restricted use option (*see, e.g.*, CLI-13-06 at 13, JAx), would yield an anomalous and impermissible result: a licensee could choose a restricted use decommissioning method for which the radiation levels after decommissioning are ALARA (relative to other potential restricted use

methods of decommissioning) even though they are much higher than if a viable unrestricted use approach had been utilized.

The NRC's "textual analysis" of the "net public or environmental harm" clause of Section 20.1403(a) asserts that "the language of 20.1403(a), which focuses on 'further reductions in residual radioactivity,' a concept necessarily linked to unrestricted release, supports our reading of the regulation to essentially require a cost-benefit analysis of the measures needed to achieve unrestricted release." CLI-13-06 at 23, JAx. The NRC contends that "the pivotal inquiry in § 20.1403(a) is whether it is cost-beneficial to reduce residual radioactivity to or below the level of unrestricted release, not whether unrestricted release leads to a higher or lower public dose than restricted release." *Id.* at 12, JAx. Thus, under the NRC's reading, the first clause of the first sentence of Section 20.1403(a) "requires a licensee to demonstrate . . . that further reducing proposed residual radioactivity to unrestricted-release levels, without considering the impacts of institutional controls and engineered barriers associated with restricted release, would not be cost-beneficial." *Id.* at 13-14, JAx.⁹

⁹ The NRC's argument is largely based on defining "residual radioactivity" as applying only to the radioactivity that remains after decommissioning is completed. *See* CLI-13-06 at 12, JAx. However, this is an unreasonably restrictive definition. "Residual radioactivity" is defined in 10 C.F.R. § 20.1003 to include *all* "radioactivity in structures, materials, soils, (Footnote continued on next page)

This explanation, however, defies logic. Why should restricted use decommissioning be allowed if attempting to reduce existing residual radioactivity levels at the site *before* decommissioning would still result in levels *after* decommissioning that failed to meet the required dose limits? Such a result would be contrary to both the ALARA principle and the dose limits set forth in 10 C.F.R. § 20.1402.

In reality, the residual radioactivity that exists at a site prior to decommissioning is independent of the decommissioning method chosen. At the time a licensee that has ceased operations at a facility is evaluating potential decommissioning approaches, it must assess the existing level of residual radioactivity then present at the site. The licensee can choose to try to reduce that existing, residual level to one permissible under 10 C.F.R. § 20.1402 (a total

groundwater, and other media at a site resulting from activities under the licensee's control," with no distinction between pre-decommissioning and post-decommissioning levels. It necessarily encompasses both the radioactivity that exists at a site prior to decommissioning and that which is left over after decommissioning has been accomplished. *See, e.g.*, 10 C.F.R. § 20.1406(c) ("[l]icensees shall, to the extent practical, conduct operations to minimize the introduction of residual radioactivity into the site, including the subsurface, in accordance with the existing radiation protection requirements in Subpart B and radiological criteria for license termination in Subpart E of this part"); *id.* § 20.1401(c) (allowing for additional required cleanup "[a]fter a site has been decommissioned and the license terminated in accordance with the criteria in this subpart" only if the Commission "determines that the criteria of this subpart were not met and residual radioactivity remaining at the site could result in significant threat to public health and safety").

effective dose equivalent (TEDE) to an average member of the critical group that does not exceed 25 mrem). If successful, he can proceed to implement decommissioning under the unrestricted use option, unless a cost-benefit analysis shows that doing so “would result in net public or environmental harm.” 10 C.F.R. § 20.1403(a). In that case, the licensee needs to consider the restricted use option provided by the introductory clause of Section 20.1403.

The NRC’s reading of the second clause in Section 20.1403(a)’s first sentence is equally baffling. The NRC interprets the clause as calling for an ALARA analysis that shows that further reductions from the pre-decommissioning residual radioactivity levels did not need to be made because those levels, after decommissioning by the restricted use method that is chosen, are ALARA. CLI-13-06 at 15, JAx. The NRC’s insistence that the ALARA analysis under Section 20.1403(a) must eschew comparison of doses between unrestricted and restricted use alternatives and instead focus exclusively on the possibility of reducing “residual radioactivity” as it exists at the site, does not explain why a restricted use decommissioning method would be selected instead of the preferred unrestricted use method; at best, it would show only why a particular restricted use method would be better than other restricted use methods from the radioactivity dose reduction standpoint.

The NRC's explanation fails to justify the selection of *any* restricted use decommissioning method over the preferred unrestricted use one, and contradicts the essential function of ALARA, which the NRC's regulations describe as reducing "exposures to radiation" (10 C.F.R. § 20.1003) and "doses to members of the public" (10 C.F.R. § 20.1101(b)). Moreover, it runs contrary to the LTR's description of the ALARA standard in Section 20.1403(a) as "an ALARA analysis of the risks and benefits of *all viable alternatives* and consideration of any detriments" as "the basis for *selecting* restricted use." 62 Fed. Reg. at 39,069 (emphases added).

Equally unavailing is the NRC's comparison of its strained interpretation of the regulation against its guidance documents and communications between the Commission and Shieldalloy. The NRC endeavors to dismiss the references in NUREG-1757 to "ALARA analyses of restricted release versus unrestricted release decommissioning goals" as simply "components of the ALARA cost-benefit analysis [that] cannot be calculated without reference to a proposed alternative." CLI-13-06 at 19, JAx. According to the NRC's interpretation, comparisons between restricted use and unrestricted use alternatives are after all relevant to the Section 20.1403(a) ALARA analysis, but only to "account for the costs of restricted release that the licensee will avoid through unrestricted release," not to compare "doses to the public under restricted and unrestricted release." *Id.*

at 21, JAxX. This explanation is inconsistent with the NRC's rejection of the need to consider unrestricted use decommissioning methods in assessing restricted use options. In addition, it is inconsistent with the essential goal of ALARA and would seem to require an arbitrarily narrow focus on the costs and benefits of various tangential aspects of reducing radiation levels to 25 mrem/year, instead of the more fundamental consideration of whether unrestricted or restricted use options would yield lower potential doses to the public in specific circumstances.

The NRC's gloss on the language used in one of the RAIs to Shieldalloy – that overestimating the cost of unrestricted release “would bias the net harm or ALARA comparison away from the unrestricted use option” – is similarly unconvincing. The Commission asserts that this statement merely indicated that an overstatement of the amount of work needed to achieve unrestricted release “could erroneously suggest eligibility for restricted release.” *Id.* at 22, JAxX. However, if eligibility for restricted use decommissioning does not depend at all on dose comparisons between restricted and unrestricted decommissioning methods, as the NRC contends, why is it even relevant how much work is required to achieve unrestricted use decommissioning? The NRC also has no explanation for how such an inquiry “could erroneously suggest eligibility for restricted release.”

In sum, notwithstanding the NRC's perplexing "textual analysis" in CLI-13-06, any cost-benefit analysis required to demonstrate ALARA under Section 20.1403(a) necessarily calls for a comparison of the costs and benefits of restricted and unrestricted use scenarios, including the potential doses achieved in either case. Determining whether "further reductions in residual radioactivity necessary to comply with the provisions of §20.1402" may be achieved, plainly requires an evaluation of doses resulting from unrestricted use decommissioning. Section 20.1402 sets a limit not for residual radioactivity itself (apart from ALARA), but rather for the TEDE which results from such residual radioactivity. Analyzing whether an unrestricted use decommissioning alternative would achieve a TEDE that is ALARA naturally entails assessing the dose levels associated with unrestricted use as an alternative. Thus, to the extent it would bar consideration of restricted use decommissioning methods, which would result in lower doses to the public than those involving unrestricted use, the NRC's reading of Section 20.1403(a) would undercut the fundamental purpose of the ALARA standard, i.e. to minimize radiation exposure risks to the public.

D. The NRC's "textual analysis" of Section 20.1403(a) contradicts prior NRC interpretations and applications of this provision

Contrary to the NRC's assertion that its precedent "support[s] the Commission's consistently stated position that the relevant inquiry under §

20.1403(a) is a comparison of the costs and benefits of reducing residual radioactivity to a qualifying level for unrestricted release” (CLI-13-06 at 23, JAx), prior NRC statements and guidance contain multiple references to comparisons between doses achieved under restricted and unrestricted use license termination alternatives. In addition to the conflicting regulations and policy statements noted by the Court in *Shieldalloy II*, 707 F.3d at 380-81, the regulatory history of the LTR and the NRC’s associated guidance documents include numerous statements contemplating the very type of comparative ALARA approach among different decommissioning options from which the Commission now tries to distance itself. Examples include the following:

1. The LTR and supporting guidance explain that the essential purpose of the restricted use option under Section 20.1403 is to serve as an alternative decommissioning method for “sites where it is *unreasonable or unwise* to attain the unrestricted dose criterion.” LTR, 62 Fed. Reg. at 39,064, JAx (emphasis added). How can NRC determine that “it is unreasonable or unwise to attain the unrestricted dose criterion” unless it has performed a comparison among alternative decommissioning methods, which it now claims is not to be done?

2. In its Generic Environmental Impact Statement supporting the LTR, the NRC recognized that “there can be situations where restricting site

use to achieve a TEDE of 25 mrem/y is a more reasonable and cost-effective option than unrestricted use.” NUREG-1496, Vol. 1 at 7-7, JAxX. How can the NRC ascertain that a restricted site use is “a more reasonable and cost-effective option than unrestricted use” if it has not performed such a comparison?

3. In the proposed rule, the Commission noted that a restricted use approach would be available to licensees so long as certain conditions are satisfied, including a determination of “the appropriateness of remediating the site for unrestricted use vs some type of restricted use in order to conserve environmental resources.” Proposed LTR, 59 Fed. Reg. at 43,220, JAxX. How can such a determination be made without undertaking a comparison between the two types of decommissioning?

These precedents, like the passages from NUREG-1757 referring to comparisons between unrestricted and restricted use options the Court discussed in *Shieldalloy II*, “evinced [] a clear expectation that a licensee must compare unrestricted and restricted release in order to establish eligibility under § 20.1403(a).” *Shieldalloy II*, 707 F.3d at 381.

The NRC’s application of the LTR to decommissioning efforts by *Shieldalloy* concerning the Newfield Facility further contradicts the agency’s

current interpretation of the rule. Throughout its long history of reviewing Shieldalloy's proposed decommissioning approaches, the NRC Staff never once objected to Shieldalloy's proposed method of compliance with Section 20.1403(a) – an ALARA analysis of the costs and benefits (including dose consequences) of available decommissioning alternatives.¹⁰ Instead, the NRC Staff, from its earliest communications with Shieldalloy, promoted such comparisons and, by declining to steer Shieldalloy away from them, endorsed Shieldalloy's approach. These interactions over the last two decades with respect to decommissioning of the Facility belie the Commission's current assertions regarding the meaning of Section 20.1403(a).

Shieldalloy's proposed decommissioning plans have always analyzed multiple alternative decommissioning options, and have consistently indicated that the restricted use decommissioning approach would result in lower doses to the public than would result from the unrestricted use alternative of removal and offsite disposal, and would therefore be preferable. *See* references cited in R9

¹⁰ As noted above, Shieldalloy's original DP for the Facility and its three successive revisions the Facility included cost-benefit (including ALARA) comparisons between restricted use, unrestricted use, and even "no action" decommissioning alternatives. These comparisons were squarely before the NRC Staff starting in 2002.

(Shieldalloy's Response to the Commission's January 3, 2011 Order (Feb. 4, 2011)), at 13, JAx.

The first two versions of the decommissioning plan proposed by Shieldalloy were rejected by the NRC for various asserted deficiencies in the information presented, none having to do with their reliance on ALARA analyses of alternative decommissioning methods. In rejecting Shieldalloy's initial DP in 2003, the Staff acknowledged the ALARA comparisons it contained but requested an elaboration of "other conservative alternatives, such as offsite disposal to other facilities ... and offsite disposal of the soils and bag-house dust and its impact of reduction on the source term" and instructed Shieldalloy to "[d]evelop and submit a site specific quantitative cost-benefit analysis to support the in-situ stabilization option [i.e., restricted use decommissioning] as ALARA, since the chosen alternative is not the environmentally preferable alternative." Letter to D. Smith dated Feb. 28, 2003, Encl. 1 at 2 (available at: <http://pbadupws.nrc.gov/docs/ML0306/ML030660342.pdf>). The NRC's rejection of the first revision of the DP (Rev. 1) also did not identify any deficiencies with respect to the ALARA analysis under Section 20.1403(a). Letter to D. Smith dated Jan. 26, 2006, Enclosure (available at: <http://pbadupws.nrc.gov/docs/ML0601/ML060180551.pdf>).

The second revision of the DP (Rev. 1a) was accepted for technical review, and its acceptance was explicitly based on the guidance set forth in NUREG-1757. Letter to D. Smith dated Oct. 18, 2006 (available at: <http://pbadupws.nrc.gov/docs/ML0625/ML062580126.pdf>) (“The NRC staff used the guidance in NUREG-1757 (Consolidated NMSS Decommissioning Guidance), Vol. 1, Section 5.3 and the May 15, 2004, interim guidance for a long-term control (LTC) license at the SMC site for conducting its administrative acceptance review of the supplement.”). Acceptance reviews for complex material site decommissioning plans ensure that such plans contain “all required information” and exhibit “no obvious technical inadequacies.” Status of the Decommissioning Program – 2013 Annual Report, SECY-13-0128, Enclosure at 16 (Nov. 29, 2013) (available at: <http://pbadupws.nrc.gov/docs/ML1331/ML13311A566.pdf>). Had the NRC Staff considered Shieldalloy’s comparative ALARA evaluation of alternative decommissioning options under Section 20.1403(a) to be inconsistent with regulatory requirements and with the guidance in NUREG-1757, it would have rejected the second revision of the DP on that basis. Thus, the Staff’s acceptance of this plan for detailed review acknowledges that, in all fundamental respects, the second revision of the DP – which continued to support its selection of the restricted use alternative based on a comparative ALARA analysis of various decommissioning alternatives – rested on an appropriate regulatory basis.

In the requests for information (“RAIs”) that followed NRC’s acceptance for review of Shieldalloy’s second revision of the DP, the NRC Staff again made no objection to Shieldalloy’s comparison of restricted and unrestricted use decommissioning alternatives in demonstrating compliance with Section 20.1403(a). To the contrary, the RAIs actively promoted such a comparison. As the Court observed in *Shieldalloy II*, 707 F.3d at 381, the July 2007 RAI cautioned that overestimating the cost of the unrestricted use alternative in the ALARA analysis “would bias the . . . ALARA comparison away from the unrestricted use option.” R6 (Request for Additional Information for Safety Review of Proposed Decommissioning Plan for Shieldalloy Metallurgical Corporation, Newfield, New Jersey, Enclosure), at 21, JAx. This RAI further instructed Shieldalloy to expand its eligibility analysis under Section 20.1403(a) to compare alternative decommissioning options in *greater detail*:

[Shieldalloy’s] eligibility analysis, for compliance with 10 C.F.R. 20.1403(a), needs to more fully discuss the costs and benefits of the proposed action, and of alternatives to the proposed action. [...] The licensee should quantify benefits and costs that can reasonably be quantified, to allow better comparison between alternatives. *Alternative decommissioning activities such as removal of the radioactive material* may produce a societal benefit of reduction in public opposition, which may be difficult to quantify.

Id. at 22, JAx (emphasis added).

In response to this RAI, Shieldalloy reaffirmed that the restricted use decommissioning option, when compared to unrestricted use alternatives, “provides both the lowest risk to the public and the lowest cost.” Response to July 5, 2007 Request for Additional Information (Nov. 9, 2007), Enclosure at 28, (available at: <http://pbadupws.nrc.gov/docs/ML0733/ML073321281.pdf>). The NRC Staff followed up on Shieldalloy’s response with a request for *additional analyses* of less quantifiable costs and benefits, and emphasized that, in discussing the alternative of shipping slag to a uranium mill, the essential inquiry is “whether this option might be more cost-beneficial than the disposal option (LT) or restricted use option currently described.” E-mail from J. Hayes to D. Smith dated March 12, 2008, Attachment at 2, 5 (available at: <http://pbadupws.nrc.gov/docs/ML0807/ML080720571.pdf>). These communications are illustrative both of the NRC’s acceptance of Shieldalloy’s comparative approach to the ALARA analysis under Section 20.1403(a) and its encouragement, consistent with the LTR, of a detailed comparative evaluation of all viable alternatives – an evaluation that includes comparison of the dose outcomes of each option. Only when the NRC found itself trying to justify its transfer of jurisdiction to New Jersey did it reverse course and assert that such an evaluation is not contemplated by the regulation.

The NRC's current attempt to eschew any comparison of dose outcomes of different decommissioning alternatives is also inconsistent with the NRC's approach in a prior decommissioning proceeding involving a Shieldalloy facility located in Cambridge, Ohio. Shieldalloy's Cambridge facility held an NRC materials license for slag similar to that present at the Newfield Facility. Before transferring jurisdiction over the Cambridge facility to Ohio under the Agreement State Program in 1999, the NRC had evaluated and endorsed a proposal by Shieldalloy to undertake an on-site disposal decommissioning approach closely resembling what Shieldalloy later proposed for its Newfield Facility. *See Draft Environmental Impact Statement: Decommissioning of the Shieldalloy Metallurgical Corporation Cambridge, Ohio Facility*, NUREG-1543 (1996) (incorporated into record by R4 (Decommissioning Plan, Newfield, New Jersey, Rev. 1)), at 5-19, JAxX (recommending "implementation of one of the on-site disposal alternatives" based on a cost-benefit analysis). The NRC Staff's analysis, which took note of the dose limits for unrestricted and restricted use specified in the then Proposed LTR, involved a comparative evaluation of doses and other risks to the public associated with several decommissioning options, including on-site disposal and off-site removal and disposal. *See id.* at 4-33 to 4-44, JAxX. Ultimately, this NRC evaluation concluded that "[t]he calculated total risk and hazard from chemicals show that the alternatives to cap and stabilize the

contaminated waste in place with contaminated sediment, with or without off-site slag, would have the lowest long-term risk and hazard.” *Id.* at 4-43, JAx. The NRC’s approach to the Cambridge facility decommissioning again demonstrates the Commission’s reliance, which it now seeks to disown, on comparative dose analyses in selecting among viable decommissioning options.¹¹

E. The NRC employs similar comparisons of dose scenarios in other contexts calling for ALARA analyses

Among the various applications of the ALARA principle in the NRC’s regulatory activities,¹² Section 20.1403(a) is far from unique in contemplating a licensee’s analysis and comparison of the dose outcomes of multiple scenarios in determining an option that is ALARA. For example, in the NRC’s 1991 rulemaking to revise its radiation protection standards, the Commission allowed the use of respirators that would not meet specified protection factors with respect to airborne radioactive material “if (and only if) such use would keep the total effective dose equivalent ALARA.” 56 Fed. Reg. at 23,378. However, the Commission cautioned that such a determination should be premised on “careful consideration of the trade-off between calculated reductions in total dose based on

¹¹ Under Ohio’s Agreement State Program, Shieldalloy decommissioned the nuclear materials at the Cambridge facility using a restricted use approach as it has proposed for Newfield.

¹² See note 6, *supra*.

ALARA evaluations and increased internal doses resulting from *alternative procedures* that do not minimize internal exposures.” *Id.* (emphasis added).

Similarly, the NRC and its Atomic Safety Licensing Board have, in various contexts, engaged in or required a direct comparison of the dose outcomes associated with different radiation protection options. *See, e.g., Yankee Atomic Energy Co.* (Yankee Atomic Power Station), CLI-96-1, 43 NRC 1, 8-9 (1996) (comparing ALARA a outcomes of DECON and SAFSTOR reactor decommissioning alternatives under 10 C.F.R. § 50.82); *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), LBP-77-51, 6 NRC 265, 292-93 (1977) (imposing condition to license amendment requiring comparison of radiation doses resulting from two alternative methods of offsite disposal). These examples contradict the NRC’s claim that Section 20.1403(a) cannot reasonably be read to require a comparative analysis to ensure selection of a decommissioning method that achieves doses to the public which are ALARA.

IV. THE NEW JERSEY PROGRAM IS INCOMPATIBLE WITH THE NRC’S DUE TO ITS FAILURE TO IMPLEMENT THE NRC’S ALARA PROVISIONS

It is undisputed that the New Jersey Program does not incorporate the provisions of the LTR and that, through such failure, the State does not allow the performance of ALARA comparisons among restricted and unrestricted release decommissioning alternatives. The NRC attempts to downplay the significance of

the lack of ALARA analyses in the New Jersey Program by arguing that, since “New Jersey has, in fact, adopted ‘more stringent criteria for license termination under restricted release than for unrestricted release, as well as more conservative criteria than ours,’ we deem[] New Jersey’s regulations to be compatible with our program under our agreement-state policy.” CLI-13-06 at 9, JAx. However, as explained in Section II above, having a more conservative radiation dose limit is immaterial for purposes of ALARA. The New Jersey Program focuses only on the potential doses from materials left onsite. This myopic view ignores the potential doses associated with the removal, transport and offsite disposal of the radioactive materials: so long as the material is removed from New Jersey, the doses to others, no matter how significant, are ignored. The Program’s “not in my back yard” approach is incompatible with the comprehensive evaluation required by the NRC.

Also, despite the NRC’s argument, making it virtually impossible to decommission a facility using restricted use criteria permitted by the NRC (which the New Jersey regulations certainly do) does not make the Program compatible with the NRC’s.¹³ To the contrary, it results in short-sighted decommissioning

¹³ The NRC points to the preference in its regulations for unrestricted use decommissioning, which is implemented in the New Jersey Program by essentially precluding restricted use decommissioning. CLI-13-06 at 3, JAx. However, as discussed above, this argument proves nothing. The restricted use option was established precisely for situations in which such (Footnote continued on next page)

outcomes that increase overall radiation risks and are inconsistent with the NRC's mission "to assure that civilian use of nuclear materials 'is carried out with adequate protection of public health and safety.'" *Shieldalloy II*, 707 F.3d at 375 (citing 62 Fed. Reg. at 46,520-21 and *Shieldalloy I*, 624 F.3d at 496). This inconsistency occurs because the New Jersey Program precludes implementation of NRC-endorsed restricted use options that, in instances such as that of the Facility, will best protect public health and safety.

Because of this inconsistency, the New Jersey Program is incompatible with the NRC's regulations, and the Commission's finding of compatibility needed to sustain the transfer of regulatory authority is in error.

an option could be preferable. As explained in the Statement of Considerations for the LTR, experience with the decommissioning of facilities since 1988 and inputs received at rulemaking workshops "indicated that restricted use of a facility, if properly designed and if proper controls were in place, was a reasonable means for terminating licenses at certain facilities." 62 Fed. Reg. at 39,069, JAx. The real issue is not which option is generally preferable but whether one option or another should be exercised for a particular facility.

V. THE NRC’S REPEATED FAILURE TO REQUIRE THAT THE NEW JERSEY PROGRAM MEET NRC LICENSE TERMINATION STANDARDS RENDERS THE REINSTATEMENT OF THE TRANSFER OF AUTHORITY ARBITRARY AND CAPRICIOUS

The incompatibility between the New Jersey Program and the NRC regulations regarding implementation of the ALARA principle for license termination is sufficient to invalidate the NRC’s transfer of regulatory authority to New Jersey. In addition, it is well settled that, in reviewing agency action under the “arbitrary and capricious” standard, a court will consider the record as a whole. *See, e.g., Am. Wildlands v. Kempthorne*, 530 F.3d 991, 1002 (D.C. Cir. 2008) (citing *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 420 (1971) and *Walter O. Boswell Mem’l Hosp. v. Heckler*, 749 F.2d 788, 792 (D.C. Cir. 1984)); *Carpenters & Millwrights Local Union 2471 v. NLRB*, 481 F.3d 804, 808-09 (D.C. Cir. 2007). Examining the totality of the NRC actions in disregard of this Court’s directives in *Shieldalloy I* and *Shieldalloy II*, its own regulations, its Compatibility Criteria, and the requirements of the AEA compels the conclusion that the NRC acted in an arbitrary and capricious manner when it repeatedly reinstated its transfer of authority over the Facility to New Jersey instead of retaining jurisdiction over it.

The NRC’s arbitrary and capricious actions, individually and taken together, require that the Court invalidate the NRC’s reinstatement of the transfer of

authority over the Facility to New Jersey. The NRC has had multiple bites of the jurisdictional transfer apple and each time has failed to comply with its own regulatory standards. The Court should once again remand the matter to the NRC, but this time with instructions that the NRC rescind its transfer and regain and retain authority over the Facility.

CONCLUSION

In *Shieldalloy I*, this Court made two basic findings: (1) that “New Jersey’s program is incompatible with the federal scheme,” and (2) that “the transfer of authority was “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 624 F.3d at 491. In CLI-13-06, the NRC has once again put forward a legally and logically flawed analysis in yet another attempt to justify its transfer of regulatory jurisdiction.

The arbitrary and capricious actions of the NRC, individually and taken together, require that the Court again remand the case with instructions that the NRC rescind its transfer of regulatory authority over the Facility to New Jersey and regain and retain authority over that site.

Shieldalloy respectfully requests that the Court grant the above and such other relief as may be appropriate.

Respectfully submitted,

/S/ Matias F. Travieso-Diaz

Jay E. Silberg
Matias F. Travieso-Diaz
Stephen L. Markus
Alison M. Crane

PILLSBURY WINTHROP
SHAW PITTMAN LLP
2300 N Street, NW
Washington, DC 20037
(202) 663-8000
Counsel for Shieldalloy Metallurgical
Corporation
E-mail: matias.travieso-diaz@pillsburylaw.com

Dated: February 4, 2014

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION

Pursuant to Rule 32(a)(7)(C) of the Federal Rules of Appellate Procedure, Petitioner's Counsel hereby certifies that the foregoing "Brief of Petitioner Shieldalloy Metallurgical Corporation" complies with the type-volume limitation in Fed. R. App. P. 32(a)(7)(B)(i) in that it contains, exclusive of the Certificate as to Parties, Rulings and Related Cases, corporate disclosure statement, table of contents, table of authorities, glossary, statement with respect to oral argument, the addendum containing statutes, rules or regulations, and the certificates of counsel, 13,737 words of proportionally spaced, 14 point Times New Roman font text.

In making this certification, Petitioner's Counsel has relied on the word count function of Microsoft Word, the word-processing system used to prepare this brief.

Respectfully submitted,

/S/ Matias F. Travieso-Diaz

Jay E. Silberg
Matias F. Travieso-Diaz
Stephen L. Markus
Alison M. Crane

PILLSBURY WINTHROP
SHAW PITTMAN LLP
2300 N Street, NW
Washington, DC 20037
(202) 663-8000
Counsel for Shieldalloy Metallurgical
Corporation
E-mail: matias.travieso-diaz@pillsburylaw.com

Dated: February 4, 2014

CERTIFICATE OF SERVICE

I hereby certify, in accordance with Circuit Rule 31, that the electronic original and five paper copies of the foregoing Brief of Petitioner Shieldalloy Metallurgical Corporation (the “Brief”) were filed with the Clerk of the Court this 4th day of February 2014. In addition, on this 4th day of February 2014, paper copies of the Brief were served on the following participants in the case by United States first class mail, postage prepaid:

Andrew P. Averbach, Esq., Solicitor
Grace H. Kim, Senior Attorney
Office of the General Counsel
U.S. Nuclear Regulatory Commission

Eric Holder, Attorney General of the United States
U.S. Department of Justice
Washington, DC 20530-0001

John Jay Hoffman, Esq.
Acting Attorney General of New Jersey
Andrew W. Reese, Esq.
Deputy Attorney General
New Jersey Office of the Attorney General
25 Market Street
P.O. Box 093
Trenton, NJ 08625-0093

/S/ Matias F. Travieso-Diaz

Matias F. Travieso-Diaz
e-mail: matias.travieso-diaz@pillsburylaw.com